

PQ2TZ55/PQ2TZ15

2.5V Output, Surface Mount Type Low Power-Loss Voltage Regulators

■ Features

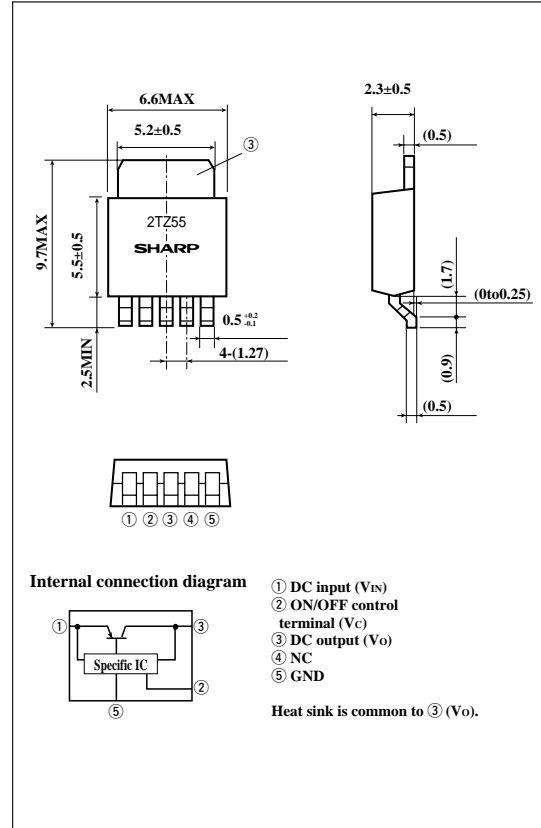
- Low power-loss (Dropout voltage : MAX 0.5V)
- Surface mount type package (Equivalent to EIAJ SC-63)
- Output voltage : 2.5V
- Minimum input voltage : 3.0V
- Output current : (0.5A : PQ2TZ55)
(1.0A : PQ2TZ15)
- Output voltage precision : $\pm 2.5\%$
- Built-in ON/OFF control function
- Low dissipation current at OFF-state (I_{qs} : MAX.5 μ A)
- Tape packaged type is also available.
(ϕ 330mm reel : 3 000pcs., PQ2TZ55U/PQ2TZ15U)

■ Applications

- Personal computers
- Personal information tools(PDA)
- Various OA equipment

■ Outline Dimensions

(Unit : mm)



■ Absolute Maximum Ratings

($T_a=25^\circ\text{C}$)

Parameter	Symbol	Rating	Unit
*1 Input voltage	V_{IN}	10	V
*1 ON/OFF control terminal voltage	V_C	10	V
Output current	I_o	PQ2TZ55	0.5
		PQ2TZ15	1
*2 Power dissipation	P_d	8	W
*3 Junction temperature	T_j	150	$^\circ\text{C}$
Operating temperature	T_{opr}	-20 to +80	$^\circ\text{C}$
Storage temperature	T_{stg}	-40 to +150	$^\circ\text{C}$
Soldering temperature	T_{sol}	260(For 10s)	$^\circ\text{C}$

*1 All are open except GND and applicable terminals.

*2 P_d : With infinite heat sink.

*3 Overheat protection may operate at $125 < T_j < 150^\circ\text{C}$

· Please refer to the chapter "Handling Precautions".

SHARP

"In the absence of confirmation by device specification sheets, SHARP takes no responsibility for any defects that may occur in equipment using any SHARP devices shown in catalogs, data books, etc. Contact SHARP in order to obtain the latest version of the device specification sheets before using any SHARP's device."

■ Electrical Characteristics

(Unless otherwise specified, conditions shall be $I_o=0.3A$ [PQ2TZ55]/ $I_o=0.5A$ [PQ2TZ15] $V_{IN}=3.3V$, $V_C=2.7V$, $T_a=25^\circ C$)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
Input voltage	V_{IN}	-	3.0	-	10	V
Output voltage	V_o	-	2.438	2.5	2.562	V
Load regulation	RegL	$I_o=5mA$ to 0.5A	-	0.2	2.0	%
		$I_o=5mA$ to 1.0A	-	-	-	-
Line regulation	RegI	$V_{IN}=3.0$ to 10V, $I_o=5mA$	-	0.1	2.5	%
Temperature coefficient of output voltage	TcV_o	$I_o=5mA$, $T_j=0$ to 125°C	-	±0.01	-	%/°C
Ripple rejection	RR	-	45	60	-	dB
Dropout voltage	V_{i-o}	$V_{IN}=3V$, $I_o=0.5A$	-	-	0.5	V
		$V_{IN}=3V$, $I_o=1.0A$	-	-	-	-
ON-state voltage for control	$V_C(ON)$	*4	2.0	-	-	V
ON-state current for control	$I_C(ON)$	-	-	-	200	µA
OFF-state voltage for control	$V_C(OFF)$	-	-	-	0.8	V
OFF-state current for control	$I_C(OFF)$	$V_C=0.4V$	-	-	2	µA
Quiescent current	I_q	$I_o=0A$	-	-	10	mA
Output OFF-state consumption current	I_{qs}	$I_o=0A$, $V_C=0.4V$	-	-	5	µA

*4 In case of opening control terminal ②, output voltage turns off.

Fig.1 Test Circuit

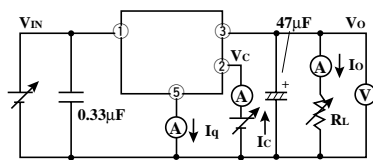
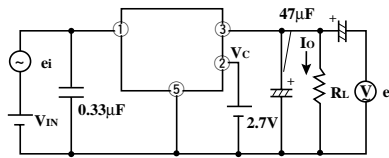
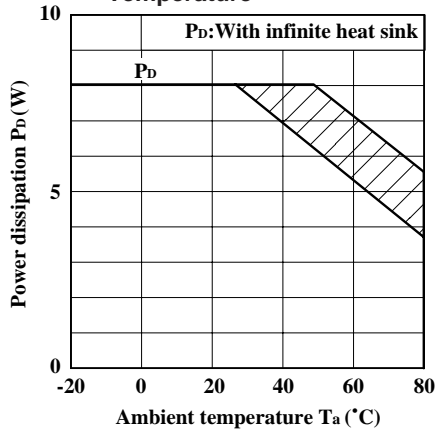


Fig.2 Test Circuit for Ripple Rejection



$f=120Hz$ (sine wave)
 $e_i=0.5V_{rms}$
 $V_{IN}=3.3V$
 $I_o=0.5A$ (PQ2TZ15)
 $I_o=0.3A$ (PQ2TZ55)
 $RR=20 \log(e_i/e_o)$

Fig.3 Power Dissipation vs. Ambient Temperature



Note) Oblique line portion: Overheat protection may operate in this area.

Fig.4 Overcurrent Protection Characteristics (PQ2TZ55)

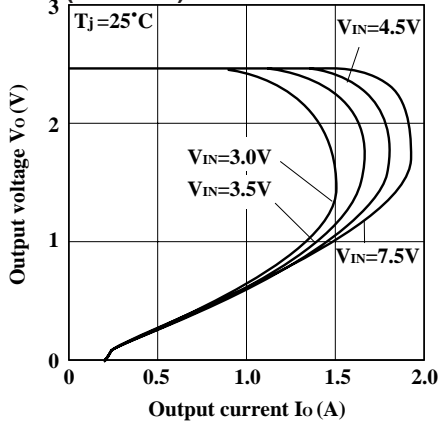


Fig.5 Overcurrent Protection Characteristics (PQ2TZ15)

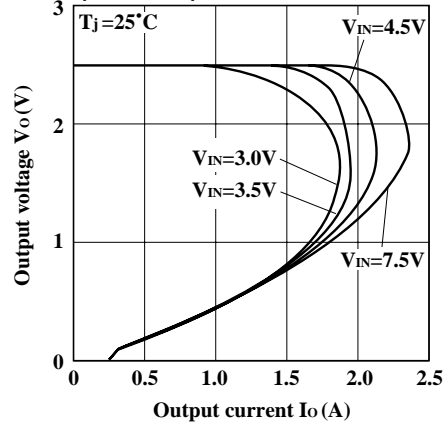


Fig.6 Output Voltage Deviation vs. Junction Temperature (PQ2TZ55)

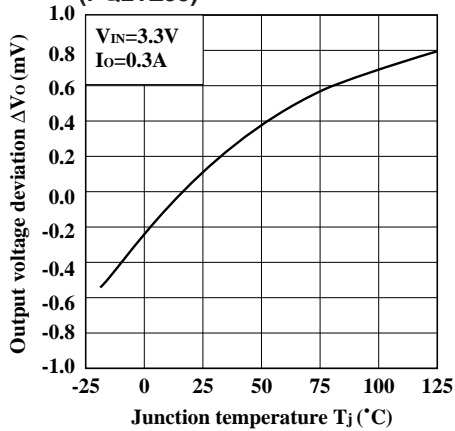


Fig.7 Output Voltage Deviation vs. Junction Temperature (PQ2TZ15)

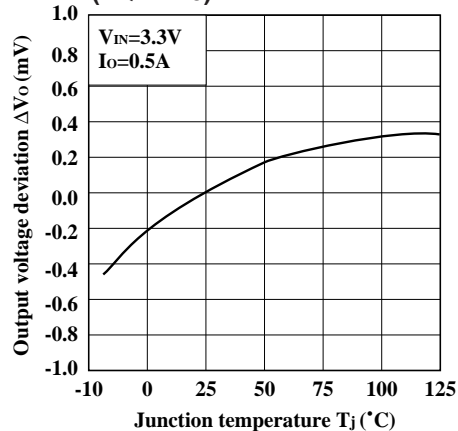


Fig.8 Output Voltage vs. Input Voltage (PQ2TZ55)

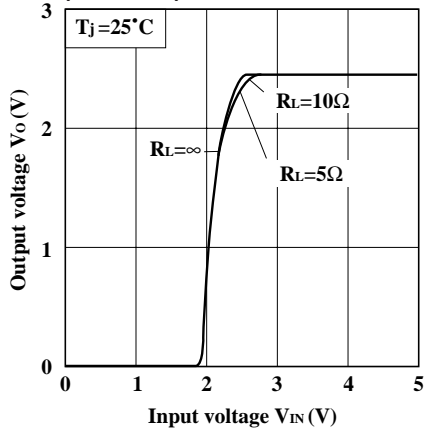


Fig.9 Output Voltage vs. Input Voltage (PQ2TZ15)

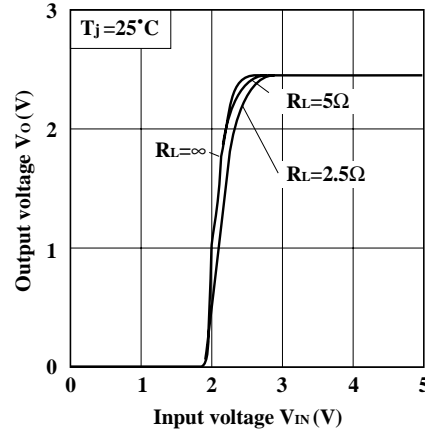


Fig.10 Circuit Operating Current vs. Input Voltage (PQ2TZ55)

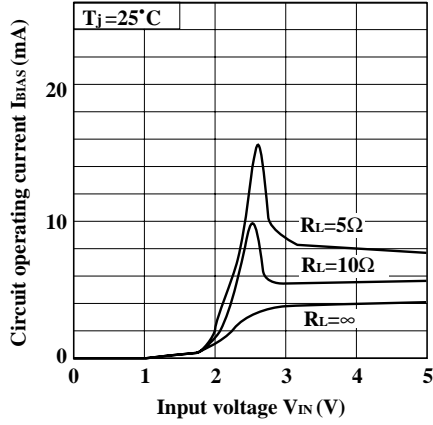


Fig.11 Circuit Operating Current vs. Input Voltage (PQ2TZ15)

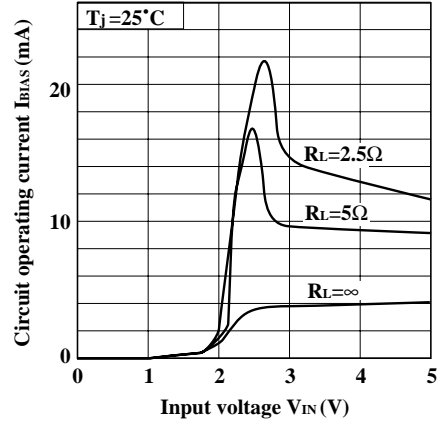


Fig.12 Quiescent Current vs. Junction Temperature (PQ2TZ55)

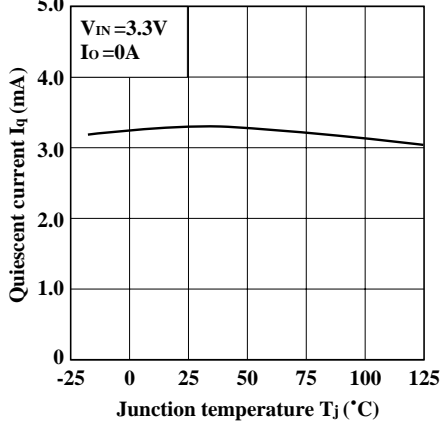
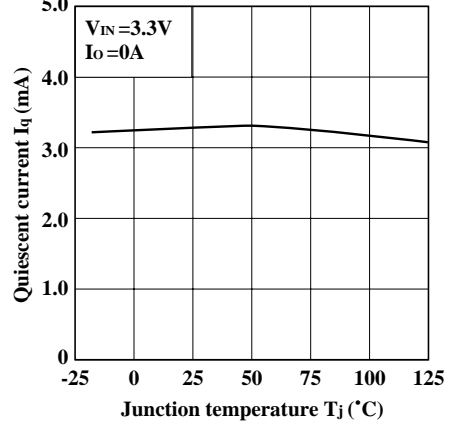


Fig.13 Quiescent Current vs. Junction Temperature (PQ2TZ15)



■ Model Line-ups for Tape-packaged Products

Output current	Sleeve-packaged products		Tape-packaged products	
	Standard type	High-precision output type	Standard type	High-precision output type
0.5A output	-	PQ2TZ55	-	PQ2TZ55U
1.0A output	-	PQ2TZ15	-	PQ2TZ15U